

REMARKS

Reconsideration of this application is respectfully requested.

Claims 1, 5, 6 and 55 are in the application. Through this Amendment, claim 1 has been amended, claim 57 has been canceled, and new claims 58-60 have been added. Claim 1 has been amended to recite that the ligand is bindable to phosphate-buffered saline diluted albumin. Support for this amendment may be found, for example, at paragraphs [0071-74] of the application as filed. New claim 58 has been added, which recites that after the ligand has been attached to the insoluble support, any remaining active groups have been blocked via exposure to a compound having a primary amine and a primary alcohol. New claim 59 has been added, dependent upon claim 58, and recites that the aforementioned compound is ethanolamine. New claim 60 has been added to recite that the ethanolamine has a pH of 8.0. Support for these new claims may be found, for example, at paragraphs [0070-80] of the application as filed. It is respectfully submitted that no new matter is introduced through this amendment.

In the Office Action, the Examiner rejected claims 1, 5, 6 and 55 under 35 U.S.C. §103(a) as being allegedly unpatentable over Grahnen et al. (Eur. J. Biochem., 80, 573-580 (1997)) in view of Spring et al. (U.S. Patent No. 5,643,721) further in view of Degen et al. (U.S. Patent No. 5,567,615). The Examiner admitted that "Grahnen et al. fail to teach the ligand attached to the support via an epoxy linkage." To overcome this deficiency, the Examiner asserted that Spring et al. teach ligands may be attached to an agarose substrate. Further, the Examiner asserted that Degen et al. teach a ligand having a hydroxyl group attached to a polymer support via an epoxy linker, and therefore asserted that Degen et al. teach attachment of a ligand that is epoxy activated (referring to Col. 13, lines 44-46) in order to provide attachment of ligands.

The claims of the pending application have been amended. In particular, claim 1 has been amended to recite that the ligand is bindable to phosphate-buffered saline diluted albumin. Grahnen is completely silent as to the binding capacity of phosphate-buffered saline diluted albumin, and in fact, Grahnen does not even disclose the ability of its apparatus to bind to albumin at all. Rather, Grahnen discloses the use of bromosulfophthalein (BSP) for extracting porcine ligandin from porcine liver cytosol. (See, Abstract at p. 573 of Grahnen).

As can be appreciated by one of skill in the art, the selection of, and dilution by, a buffer may have a significant impact on the resulting binding capacity. There is no disclosure or suggestion in Grahnen to bind to albumin of the target material, let alone albumin that has been diluted with a phosphate buffered saline. Spring discloses immobilizing a bioreagent on a solid phase, while Degen discloses binding ligands to polymers. However, neither of Spring or Degen discloses binding diluted albumin, and thus do not remedy the defect of Grahnen.

It is respectfully submitted that claims 1, 5, 6, 55 and 58-60 are patentable over Grahnen, Spring and Degen, whether taken alone or in combination.

Further, new claims 58-60 are allowable beyond the reasons stated above. These claims recite that, after the ligand has been attached to the insoluble support, any remaining active groups have been blocked via exposure to a compound including a primary amine and a primary alcohol. This limitation results in a structural change to the bound ligand and insoluble support, as active groups that may have remained after the linkage have been blocked and are thus incapable of further binding. It is thus respectfully submitted that this limitation results in a physically and structurally changed final product.

None of the cited references discloses blocking of active groups via exposure to the claimed compound including a primary amine and a primary alcohol. In Grahnen, for example, after bromosulphophthalein has been bound to cross-linked sepharose, the bound groups are washed consecutively with "1M NaOH, 0.1 M glycine in 1M KCl (pH 3), 2% sodium dodecylsulphate, 6 M urea, 2M KSCN in 0.01 M Na₂HPO₄ (pH 7.4), distilled water, and finally with 0.01 M phosphate buffer, pH 7.4, containing 0.001 M EDTA and 0.1 M NaCl". (Grahnen, page 2).

None of the compounds that Grahnen uses to wash includes a primary alcohol and a primary amine. Further, none of the compounds is ethanolamine or has a pH of 8.0 (as set forth in dependent claims 56 and 58). In fact, Grahnen's washes are with the following: a very highly basic substance (1M NaOH, having a pH of about 14), followed with an acidic substance, a surfactant, urea, KSCN, water, and a phosphate – none of which includes the claimed amine/alcohol containing compound. The resultant end product of Grahnen is structurally and reactively different than the claimed product.

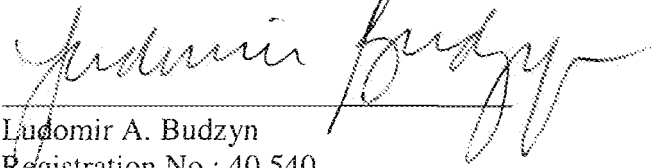
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Neither Spring nor Degen cures this defect of Grahnen, since neither of these references disclose the bound complex having been exposed to a compound having a primary amine and a primary alcohol, which blocks any remaining active groups.

It is therefore respectfully submitted that new claims 58-60 provide additional bases of patentability.

Favorable action is earnestly solicited. If there are any questions or if additional information is required, the Examiner is respectfully requested to contact Applicant's attorney at the number listed below.

Respectfully submitted,



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